Public Works (1906) Department.

G.O., No. 814 } I
815 }

DATED 26.7. **1906.**

40 copies ... with
2/2 copies ... District
2/2 ... Lockhart ... sketch
for the G of I.
40 copies of Notes (30 copies for the ... Engr)
40 copies of Notes ... to be stitched with the office Engr.).

31/7/06

The Notes
in this G.O. have been printed.

[Despatch Abstract.]

Peranai
~~Perunai~~ Head Works, Periyar Project

A re-revised estimate, amounting to Rs 407874, for remodelling the ———, sanctioned with remarks, & a copy of the Pros. ordered to be forwarded to the G of I for information.

=

Peranai Head Works, Periyar Project

Forwarding a copy of the Pros. sanctioning with remarks and a re-revised Estimate, amounting to Rs 407874, for remodelling the ———

P. W. 36.
300—19-5-06

Indexed

... 27/7/06   FLS 28/VII   106 G of I 06-07 Registered ... 28.7.06

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	D

FURTHER PAPERS.

G.O.	No.	Deparment	Date.	G.O.	No.	Department.	D

IRRIGATION.
ACCOUNT.

Government of Madras.

PUBLIC WORKS DEPARTMENT.

Recd. } 1906. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 814, 815 I., 26th July 1906.

Peranai Head works, Periyar Project

Forwarding a copy of the Proceedings, sanctioning with remarks, a re-revised estimate, amounting to Rs. 4,07,874, for remodelling the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

I

G.O., No. 156 I., dated 10th February 1904.

Abstract.—Approving the estimate, amounting to Rs. 3,97,274, for remodelling the Peranai head works, Periyár project, and forwarding to the Government of India, for early sanction, a copy of the Proceedings together with the plans and estimate for the work.

II

G.O., No. 1086 I., dated 7th October 1904.

Abstract.—Letters from the Government of India sanctioning the estimate of Rs. 3,97,274 for remodelling the Peranai head works, Periyár project, and the write-back from "43" to "49" in the accounts of 1903–1904 of the outlay of Rs. 36,164 incurred in 1902–1903 on the Peranai regulator.

III

G.O., No. 188 I., dated 18th February 1905.

Abstract.—Approving, with remarks, the revised estimate of Rs. 3,01,910 and deviation statement for the Peranai head works.

IV

G.O., No. 761 W., dated 29th March 1906.

Abstract.—Approving the proposal of the Superintending Engineer to provide a 9 ft. clear roadway for Peranai regulator bridge and requesting the General Superintendent, Public Works Stores, to revise the plan and estimate of the iron work of the bridge accordingly.

V

Letter—from C. A. Smith, Esq., Superintending Engineer, VI Circle.
To—the Chief Engineer for Irrigation.
Dated—Trichinopoly, the 23rd January 1906.
No.—64 C.E.

I have the honour to inform you that in G.O., No. 188 I., dated 18th February 1905, an estimate, amounting to Rs. 3,01,910, was sanctioned for remodelling the head works at Peranai. This estimate has been now revised to Rs. 3,25,500, showing an excess of Rs. 23,590 over the original estimate and this excess is detailed below :—

(1) Diviations in the original designs chiefly affecting the items cut-stone and slab-stone works both in the regulator and head sluice costing Rs. 3,247 and Rs. 1,932, respectively.

(2) Increase in rates, Rs. 263.

(3) Insufficient provision in the original estimate, in the case of regulator work Rs. 19,107 and in the case of head sluice Rs. 8,875. This large increase is chiefly due to the estimate for shutters made by the Public Works Workshops. From the records of this office it is not ascertainable how the original rates were fixed.

(4) Extra works found necessary to be executed, Rs. 78 in the case of the regulator work and Rs. 1,975 in the case of head sluice.

	RS.
Total	35,477
Deduct savings on other items of the estimate	11,887
Net excess requiring sanction is ...	23,590

2. A comparative statement explaining the cause for the excess or savings is also submitted.

3. I may however inform you that the question of the width of the roadway for the bridge over the regulator is still under consideration with the Chief Engineer, Public Works Department, and no alteration has therefore been made in this item.

4. The revised estimate is recommended.

ENCLOSURES.

Report to accompany the revised estimate for remodelling the head works at Peranai.

	RS.
Amount of the present estimate	3,25,500
Amount of the first revised estimate (G.O., No. 188 I., dated 18th February 1905)	3,01,910
Difference ...	23,590

The estimate sanctioned in G.O., No. 188 I., dated 18th February 1905, has to be revised for reasons set forth in the comparative statement of differences attached to the revised estimate.

Though the net excess is only Rs. 23,590 for which the revised estimate has been prepared, yet there is an excess of 27,440 due to erroneous provision made in the original estimate as explained in the comparative statement. Excess in other items is trifling and calls for no special remarks.

A. V. RAMALINGA AIYAR,
Executive Engineer, Madura Division.

21st September 1905.

Estimate Form.—Comparative statement of differences.

Description of work.	Original estimate.			Revised estimate.			More.	Less.	Explanation of difference.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
IMPERIAL. Capital Expenditure not charged to Revenue. 49. *Irrigation.* Periyár Project. Madura Division. Open Capital Account. I. Works. 1. Head Works. Unremunerative Works. Remodelling the Head Works at Peranai. Constructing a Regulator at Peranai across the Vaigai.									
1. Benching rock or kunkur	11,223	5 0 0	561	11,223	5 0 0	561	..	..	
2. Concrete in surki mortar with white jellies.	31,721	12 0 0	3,807	31,721	12 0 0	3,807	..	..	
3. Concrete in surki mortar with black jellies.	5,522	14 8 0	801	5,522	14 8 0	801	..	..	
4. Random rubble in surki mortar	1,03,951	14 0 0	14,553	1,03,951	14 0 0	14,553	..	..	
5. Coursed rubble in surki mortar	56,325	25 0 0	14,081	54,745	25 0 0	13,686	..	395	5. The thickness of each course being about 9″, the cutstone facings in cut waters both in front and rear have been increased from 9″ to 12″ so that the cutstones might bond well into the masonry and might not be laid on edge; hence the decrease under this item.
6. Cutstone finely dressed	5,025	100 0 0	5,025	6,446	100 0 0	6,446	1,421	..	6. Increase due to extra thickness allowed for cutstone facings.
7. Slabstone work with slabs removed from the anicut 9″ thick.	6,189	0 9 0	3,481	4,121	0 9 0	2,318	..	1,163	7 & 8. Quantity available from anicut was found less than what was originally estimated; hence the decrease under item 7 and increase under item 8.
8. Slabstone work with new stones	6,189	0 14 0	5,415	8,275	0 14 0	7,241	1,826	..	
9. Roughly dressed ashlar	267	75 0 0	200	267	75 0 0	200	..	..	
10. Dry rubble with half new stone	24,268	6 0 0	1,456	24,268	6 0 0	1,456	..	..	
11. Cyclopean rubble in surki mortar with stone at site.	50,764	12 0 0	6,091	50,764	12 0 0	6,091	..	..	
12. Pointing with cement in foundations ..	..	Lump sum.	600	..	Lump sum.	625	25	..	12. Amount paid as per actual measurements made. Excess trifling.
13. Pointing with surki mortar superstructure.	..	Do.	400	..	Do.	400	..	..	
14. Baling charges	..	Do.	34,500	..	Do.	30,000	..	4,500	14. About Rs. 4,500 have to be credited to this work for the engines, pumps, etc., sent to Workshops and Trichinopoly division.

Estimate form.—Comparative statement of differences.

Description of work.	ORIGINAL ESTIMATE.			REVISED ESTIMATE.			More.	Less.	Explanation of difference.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
15. Shutters as per intimation received from Public Works Superintendent.	10	88,335 0 0	88,335	10	10,700 0 0	1,07,000	18,665	..	15. The estimated value of shutters as per estimate furnished by the General Superintendent, Public Works Workshops, herewith sent is Rs. 1,07,000 and the outlay under this item to the end of July 1905 is Rs. 1,05,110. Balance is required for charges incurred and still remaining to be paid. But the provision in the sanctioned estimate is Rs. 88,335. It is not known from the records of this office how this has been arrived at.
15-a. Modification in the shaft arrangement of the shutter as per estimate received from General Superintendent, Public Works Workshops.	..	..	..	..	..	6,250	6,250	..	
16. Iron works for girder bridge as per details of separate estimate.	..	Lump sum.	23,600	..	Lump sum.	23,600	..	..	
17. Forming ring bund	..	Do.	2,500	..	Do.	2,500	..	..	
18. Sheds for materials	..	Do.	500	..	Do.	500	..	..	
19. Dismantling the old anicut	..	Do.	2,500	..	Do.	2,500	..	..	
20. Removing the earth, etc., in front of first 6 spans.	..	Do.	500	..	Do.	917	417	..	20. Provision made in the original estimate was insufficient and the outlay incurred is as per actual measurements and levels taken.
21. Excavating foundations and filling in ..	..	Do.	12,000	..	Do.	12,000	..	..	
22. Dressing of sides of grooves very finely ..	4,200	0 4 0	1,050	4,200	0 5 0	1,313	263	..	22. It was not found possible to do this work at estimated rate, hence the rates had to be increased as labour had to go from Madura.
23. Concrete in mortar in superstructure over pier.	600	12 0 0	72	600	12 0 0	72	..	..	
24. Chisel drafts	..	..	..	310	0 4 0	78	78	..	24. The corners of abutments and piers were chisled to give a fine and stright edging.
25. Unforeseen works	..	Lump sum.	2,000	..	Lump sum.	1,000	..	1,000	
26. Contingencies—Petty supervision ..	..	Do.	5,957	..	..	5,000	..	957	
Total ..	..	..	2,29,985	..	..	2,50,915	28,945	8,015	
Head sluice.									
1. Benching on rock or kunkur	3,496	5 0 0	197	4,798	5 0 0	240	43	..	1. As per actual measurements made and paid for.
2. Random rubble in surki mortar	24,284	14 0 0	3,400	19,239	14 0 0	2,693	..	707	2. Rock was met with in a higher level, hence the reduction in depth of foundation—*vide* section sheets attached.
3. Concrete in surki mortar	11,275	12 0 0	1,353	13,416	12 0 0	1,610	257	..	3. Excess due to additional quantity required for filling in the spandrels.
4. Concrete arch work	4,849	16 0 0	776	4,751	16 0 0	760	..	16	4. Difference trifling.

Estimate Form.—Comparative statement of differences—*cont.*

Description of work.	Original estimate. Quantity.	Original estimate. Rate.	Original estimate. Amount.	Revised estimate. Quantity.	Revised estimate. Rate.	Revised estimate. Amount.	More.	Less.	Explanation of difference.
1	2	3	4	5	6	7	8	9	10
Head sluice—cont.		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
5. Coursed rubble in surki mortar	34,016	25 0 0	8,504	32,630	25 0 0	8,158	..	346	5. Explanation same as those noted for itmes 6 to 8, regulator.
6. Slab stones removed from the anicut ..	2,118	0 9 0	1,191	320	0 9 0	180	..	1,011	
7. Slab stone work, new	2,118	0 14 0	1,854	3,915	0 14 0	3,426	1,572	..	
8. Cutstone finally dressed	1,481	100 0 0	1,481	1,841	100 0 0	1,841	360	..	
9. Do. roughly dressed	467	75 0 0	350	467	75 0 0	350	..	..	
10. Cyclopean rubble in surki concrete with stone at site.	12,090	12 0 0	1,451	10,828	12 0 0	1,299	..	152	10. In some places this was found unnecessary as rock was met with.
11. Rough stone dry packing with ½ new stone.	6,856	6 0 0	411	6,856	6 0 0	411	..	..	
12. Centering for concrete arches	..	Lump sum.	1,000	..	Lump sum.	1,000	..	..	
13. Pointing with surki mortar	230·00	2 0 0	460	230	2 0 0	460	..	..	
14. Plastering introdos of arch	35·00	3 0 0	105	35·00	3 0 0	105	..	..	
15 A. Dressing the groove portion of pier ..	..	..	..	1,680	0 5 0	525	525	..	15A. This was not originally estimated for and now found necessary to allow the shutter to move freely.
15 B. Excavating foundations forming ring bund, etc.	..	Lump sum.	1,500	..	Lump sum.	2,000	500	..	15B. Original provision was found insufficient as higher rates had to be paid for excavation in hard kunkur and soft rock.
16. Baling charges	..	Do.	1,000	..	Do.	1,000	..	..	
17. Filling in open spaces between cross wall.	..	Do.	10	..	Do.	10	..	..	
18. Lift shutters for head sluice	No. 6	Do.	35,025	6	Do.	43,100	8,075	..	18. The estimated value of shutters as per estimate forwarded by the General Superintendent and herewith sent is Rs. 4,300 and the outlay upto the end of July is Rs. 37,850 ; and none of them are fitted up yet. It is not known how the provision of Rs. 35,025 was fixed as the cost of shutters.
19. Chisel drafts	..	..	..	100	0 4 0	25	25	..	19. Same as for regulator.
20. Removal of ring bund right round the head sluice and clearing silt in front and rear of head sluice.	..	..	..	..	Lump sum.	726	726	..	20. Ring bund had to be removed to allow water in the main canal and no provision was made in the estimate for this item.
Contingencies and petty supervision ..	..	..	2,257	..	..	1,801	..	456	
Total ..	..	..	62,325	..	..	71,720	12,083	2,688	
Forming the flood banks of the river, roadway, etc.									
1. Earthwork for forming flood banks, road, etc.	762·000	4 0 0	3,048	675,000	4 0 0	2,700	..	348	1 to 3 A. Savings due to the construction of a training wall over the high portion of anicut between the scouring sluice and the regulator instead of forming a bank at the site as per instructions conveyed in No. 1368, dated 20th April 1904, from the Chief Engineer for Irrigation (by Mr. J. P. Davidson).
2. Rough stone dry packing with half new stones.	24,300	6 0 0	1,458	13,275	6 0 0	797	..	661	
3. Random rubble in ordinary mortar ..	..	..	..	6,390	10 0 0	639	639	..	
3A. Labour for building the coping of training wall with the coping stone removed from the anicut.	..	..	..	..	Lump sum.	60	60	..	

Estimate Form.—Comparative statement of differences—*cont.*

Description of work.	Original Estimate.			Revised Estimate.			More.	Less.	Explanation of Difference.
	Quantity	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
Forming the flood banks of the river, Road way, etc.—cont.		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
4. Turfing the slopes of roadway	30,000	0 8 0	150	30,000	0 8 0	150	..	..	
5. Gravelling and metalling the roadway ..	10,200	4 0 0	408	10,200	4 0 0	408	..	..	
6. South Indian Railway Rails, old ..	3,028	0 12 0	2,271	3,028	0 12 0	2,271	..	..	
7. Fitting charges for the rails	..	Lump sum.	120	..	Lump sum.	120	..	..	
8. Conveyance charges to the workspot ..	..	Do.	30	..	Do.	30	..	..	
9. Contingencies and petty supervision ..	..	Do.	615	..	Do.	500	..	115	
Culvert at the crossing of the Vilangal channel.									
Culvert at the crossing of the Vilangal channel (as per separate estimate attached).	..	Lump sum.	700	..	Lump sum.	640	..	60	
Land Compensation.									
Compensation for land	..	Lump sum.	773	..	Lump sum.	773	..	..	
Miscellaneous.									
Demarcation stone	..	Lump sum.	27	..	Lump sum.	27	..	..	
Abstract.									
Regulator	..	..	2,29,985	..	..	2,50,915	28,945	8,015	
Head sluice	..	..	62,325	..	..	71,720	12,083	2,688	
Forming flood bank	..	..	8,100	..	..	7,675	699	1,124	
Culvert	..	..	700	..	..	640	..	60	
Land Compensation	..	..	773	..	..	773	..	..	
Miscellaneous	..	..	27	..	..	27	..	..	
Total ..	..	..	3,01,910	..	..	3,31,750	41,727	11,887	
Deduct amount sanctioned in G.O., No. 188 I., dated 18th February 1905.	..	..	..	..	..	3,01,910	11,887	..	
Net amount requiring sanction	..	..	..	..	..	29,840	29,840	..	

	RS.
Revised estimate—	
I. Works—	
Works	3,30,977
Land	773
	3,31,750
II. Establishment	76,124
Total ..	4,07,874

VI

To the General Superintendent, P.W. Workshops, dated 9th Feb. 1906, No. 473.
From the " " " 13th " " " W./33 E.I.
To the " " " 27th " " " 720.
From the " " " 1st March " " W./37 E.I.
To the " " " 20th " " " 1034.
From the " " " 22nd " " " W./42 E.I.
To the " " " 17th April " " 1353.
From the General Superintendent, Public Works Workshops, to the Chief Engineer, Public Works Department, dated 19th April 1906, No. W./3 'W'.
From the General Superintendent, P.W. Workshops, dated 5th May 1906, No. W./3 E.I.
From the General Superintendent, Public Works Workshops, to the Chief Engineer, Public Works Department, dated 8th May 1906, No. W./7 'W'.
To the General Superintendent, P.W. Workshops, dated 25th May 1906, No. 104-O.
To the Superintending Engineer, VI Circle, dated 25th May 1906, No. 105-O.
From the General Superintendent, P.W. Workshops, dated 6th June 1906, No. W./6 E.I.
To the " " " 18th " " " 2225.
From the " " " 20th " " " W./7 E.I.

VII

Note by the Chief Engineer for Irrigation.

In G.O., No. 188 I., dated 18th February 1905, a revised estimate and deviation statement for Rs. 3,01,910 were approved for remodelling the Peranai head works, Periyár Project. The Superintending Engineer, VI Circle, now submits a re-revised estimate of Rs. 3,25,500 for the work, showing an excess of Rs. 23,590 over the first revised estimate which is chiefly due to the following causes:—

(a) *Items of excess.*

	RS.
(1) Excess due to (i) the extra quantity of new cutstone used, the quantity obtained from the old anicut having been found less than anticipated, and (ii) to the thickness of the cutstone facing for the cutwaters having been increased from 9″ to 12″.	2,610
(2) Excess due to insufficient provision made in the former estimate, chiefly for shutters	27,982
(3) Excess due to increase in rates	263
(4) Excess due to extra work found necessary	1,354
Total, excess ...	32,209

(b) *Items of saving.*

	RS.
(i) Savings in baling	4,500
(ii) Do. in unforeseen works	1,000
(iii) Do. in contingencies	1,413
(iv) Do. under minor items	1,221
(v) Do. in flood banks	485
Total, saving ...	8,619
Net excess ...	23,590

The General Superintendent, Public Works Workshops, having proposed to increase the dimensions of the main shaft of the shutters of the regulator, was asked to forward an estimate for the same. He now submits an estimate of Rs. 6,250 which may be added to the present re-revised estimate. The amount of the latter will then be raised to Rs. 3,31,750, thus increasing the above excess to Rs. 29,840. It is however observed that there has been a good deal of confusion in connection with the estimated cost of the shutters which could have been avoided if the General Superintendent had, in the first instance, furnished a correct estimate to the Superintending Engineer.

2. In the original estimate for the regulator only a foot-bridge was allowed but at the request of the President, District Board, Madura, a girder bridge with a roadway, 13 feet wide, to be suitable for cart traffic was provided for in the revised estimate for the work, the District Board of Madura agreeing to contribute the difference of cost between the foot bridge and the girder bridge. In G.O., No. 761 W., dated 29th March 1906, it was decided, on the motion of the Superintending Engineer, that the roadway should be only 9 feet. The General Superintendent, Public Works Workshops, was accordingly requested to revise the plan and estimate for the iron-work of the bridge. With his Nos. W./3 'W' and W./7 'W', dated 19th April and 8th May 1906, respectively, he submitted two estimates aggregating Rs. 28,270 for (1) * iron-work and (2) † Pingadu wood-flooring of the bridge, against Rs. 23,600 as shown in the first revised estimate. The rate of Rs. 4 per cubic foot allowed for Pingadu wood-work being considered very high, has been altered in this office to Rs. 2-10-0 per cubic foot. This alteration has correspondingly reduced the estimate of Rs. 9,000 for wood-work to Rs. 4,330. The total cost of the bridge as provided in the first revised estimate, viz., Rs. 23,600, remains, therefore, unaltered.‡

	RS.
*	19,270
†	9,000
	28,270

	RS.
‡	19,270
+	4,330
	23,600

3. As the total excess of Rs. 29,840 shown above is within 10 per cent. of the first revised estimate and as the deviations made are not of an important nature, it is recommended that the re-revised estimate be sanctioned by the local Government under paragraph 2,170 of the Public Works Department Code.

C. A. SMITH,
Ag. Chief Engineer for Irrigation.

17*th July* 1906.

Order—No. 814 I., dated 26th July 1906.

The re-revised estimate, amounting to Rs. 3,31,750 for "works", or Rs. 4,07,874 including the charge for establishment, for remodelling the head works at Peranai, Periyár Project, is sanctioned, in supersession of the revised estimate approved in G.O., No. 188 I., dated 18th February 1905.

2. This sanction is registered as No. 106 I. of 1906-1907 and will expire on the 31st March 1907.

3. The attention of the Superintendent, Public Works Workshops, and the Superintending Engineer, VI Circle, is drawn to the concluding sentence of paragraph 1 of the Chief Engineer's note above.

4. Ordered that a copy of these Proceedings be forwarded to the Government of India for information, in continuation of endorsement No. 189 I., dated 18th February 1905.

[Here enter No. 815 I., dated 26th July 1906.]

(True Extract.)

C. A. SMITH,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle, with plans and estimates.
,, General Superintendent, Public Works Workshops.
,, Examiner, Public Works Accounts.
,, Local and Municipal Department.

Endorsement—No. 815 I., dated 26th July 1906.

Forwarded.

(By order.)

C. A. SMITH,
Ag. Joint Secretary to Government,
Irrigation Branch.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

NOTES CONNECTED WITH G.O., No. 814 I., DATED 26TH JULY 1906.

[SUBJECT.—*Remodelling the head works at Peranai, Periyár project.*]

From the Superintending Engineer, VI Circle, dated 23rd January 1906, No. 64 C.E.

Under Secretary—

The Superintending Engineer submits a second revised estimate for remodelling the Peranai head works, showing an excess of Rs. 23,590 over the first revised estimate of Rs. 3,01,910 approved in G.O., No. 188 I., dated 18th February 1905. Details for the excess of Rs. 23,590 are given below:—

	Regulator.	Head-sluice.
Excess.		
	RS.	RS.
Due to deviations in the original designs affecting cut stone and slabstone works	3,247	1,932
Due to increase in rates	263	...
Due to insufficient provision for shutters, etc.	19,107	8,900
Due to extra work found necessary	78	1,251
	22,695	12,083
	34,778	
Saving.		
Amount credited to the work, on account of engines and pumps, etc., transferred to Public Works Stores and the Trichinopoly division	4,500	...
Savings in the sub-head unforeseen works	1,000	...
Reduction in the depth of foundation owing to rock met with	...	707
Savings under contingencies and petty supervision ...	957	456
Do. other sub-heads	1,558	1,525
	10,703	
Savings in the sub-work "flood bank"	425	
Do. "culvert"	60	
Total saving ...	11,188	
Net excess ...	23,590	

2. In G.O., Nos. 156-57 I., dated 10th February 1904, approving the original estimate for the work a provision of Rs. 1,90,050, was made for the shutters as shown below:—

	RS.
10 shutters for the regulator	1,46,250
6 shutters for the head sluice	43,800
Total ...	1,90,050

When this estimate was subsequently revised at the instance of the President, District Board, Madura, who requested that provision may be made in the estimate for a girder bridge suitable for cart traffic over the regulator and head sluice, it was reported by the General Superintendent, Public Works Workshops, that there would be a saving of Rs. 66,690 in the provision made for shutters. The provision for shutters was accordingly reduced and the revised estimate for the work approved and ordered to be forwarded to the Government of India in G.O., No. 188 I., dated 18th February 1905.

3. In the re-revised estimate now submitted by the Superintending Engineer, it is stated that the cost of the shutters, as reported by the General Superintendent, amounts to Rs. 1,50,100, viz :—

	RS.
Shutters for the regulator	1,07,000
Do. for the head sluice	43,100
	1,50,100

4. In paragraph 3 of the letter, the Superintending Engineer states that the question of the width of the roadway for the bridge over the regulator is under correspondence with the Chief Engineer, Public Works Department, and that no alteration has therefore been made in this item. It is understood from Public Works office that the subject is under disposal in the Local and Municipal Department.

It is submitted that the current may lie over, pending settlement of this question. In the meantime, orders are requested if the General Superintendent may be asked to explain the cause of excess referred to in paragraph 3 under "Cost of shutters".

T.R.
6-2-06.

T. W. S. SMYTH.
6-2-06.

[Issued as endorsement No. 473, dated 9th February 1906.]

From the General Superintendent, Public Works Workshops, dated 13th February 1906, No. W./33 E.I.

[Issued as memorandum, No. 720, dated 27th February 1906.]

From the General Superintendent, Public Works Workshops, dated 1st March 1906, No. W./37 E.I.

Under Secretary—

The General Superintendent now reports that the savings anticipated by him in November 1904 was only a rough figure and that a revised estimate prepared subsequently amounted to Rs. 1,50,800.

The question of the width of the roadway for the bridge over the regulator is still under disposal in the Local and Municipal Department. The settlement of this question will be awaited. Meanwhile the revised estimate may be checked.

T.R.
3-3-06.

Check estimate.

T.W.S.S.
6-3-06.

Joint Secretary—

The question of the width of roadway has been decided in G.O., No. 761 W., dated 29th March 1906.

The estimate has been checked and the figures of the office given in the Technical notes may be accepted and an order sanctioning the estimate may be issued.

T.W.S.S.
13-6-06.

This revised estimate does not provide for the cost of the extra work now in hand, *i.e.*, replacing the main shafts with stronger ones, etc., and the cost of them should be obtained from Public Works Workshops and included. There seem to have been a good deal of confusion in connection with the estimated cost of the shutters due probably to the estimates having been partly prepared here and partly in the VI Circle.

I think that in Chief Engineer for Irrigation's note to accompany the present **A** | estimate this might be alluded to and attention of Superintending Engineer drawn to the necessity of obtaining correct estimates from the General Superintendent.

I cannot say where the blame lies in the present case, but I don't want it to occur again.

C.A.S.
14-6-06.

Chief Engineer for Irrigation—

The necessity for this second revision of the estimate must undoubtedly be laid to **A** | the General Superintendent, Public Works Workshops. He reported that there would be a saving of Rs. 67,790 on the originally estimated cost of the shutters, now it is necessary to provide Rs. 19,107 + Rs. 8,900 on this account there are net savings on the rest of the work.

Page 6, G.O., No. 188 I., dated 18th February 1905.

Madras office will be directed to obtain an estimate of the cost of replacing the **B** | shafts and beams by stronger ones as directed in your office-note and to include it in the estimate and send up a draft order sanctioning the estimate.

T.W.S.S.
14-6-06.

A | Yes, but there was evidently some confusion between the amounts provided for regulator and head sluice.

B | Approved.

C.A.S.
15-6-06.

From the Superintending Engineer, VI Circle, dated 23rd January 1906, *No.* 64 *C.E.*

NOTE BY TECHNICAL SECTION.

Name of work.—Remodelling the head works at Peranai.

	RS.
Amount of estimate	3,25,500
Original	3,01,910
Excess ...	23,590

In G.O., No. 156 I., dated 10th May 1904, an estimate for Rs. 3,23,000 was sanctioned for remodelling the head works at Peranai, *i.e.*, for constructing an open regulator having 10 spans of 40 feet each with lift shutters 40′ + 10′ and a head sluice having 6 vents of 20 feet span each regulated with double lift shutters (the

upper one 20′ + 4′ and the lower one 20′ + 2′) in lieu of the old anicut and head sluice at Peranai. In the above estimate provision was made for a foot bridge of 5 feet width over the regulator and head sluice.

As the President, District Board, Madura, desired to have a girder bridge with roadway 13 feet wide instead of the foot bridge, the estimate was revised by providing for a girder bridge 12 feet wide in the clear over the regulator and widening the roadway of the head sluice to $11\frac{3}{4}$ feet between parapets.

The above revised estimate amounted to only Rs. 3,01,910 against Rs. 3,23,000 originally sanctioned as a large saving of about Rs. 66,700 was expected in the lift shutters of the regulator and head sluice as reported by the General Superintendent of the Public Works Workshops.

Vide G.O., Nos. 188–89 I., dated 18th February 1905.

The Superintending Engineer, VI Circle, with his letter No. 64 C.E., dated 23rd January 1906, submitted a second revised estimate for Rs. 3,25,500 for the work. In this connection, he pointed out that the question of the width of the roadway for the girder bridge over the regulator was still under consideration with the Chief Engineer, Public Works Department, and that no alteration was made in that item.

In G.O., No. 761 W., dated 29th March 1906, it was decided to provide a girder bridge with 9 feet clear roadway over the regulator and the General Superintendent, Public Works Workshops, was requested to revise the plan and estimate for the iron work of the bridge accordingly.

The revised estimate was ordered to lie over until the revised estimate for the girder bridge is submitted by the General Superintendent, Public Works Workshops.

The General Superintendent submitted a revised estimate for Rs. 19,270 for the iron work of the bridge omitting the cost of the Pingadu wood flooring. In continuation of the above he now submits a supplemental estimate for Rs. 9,000 for Pingadu wood-work thus making the total for the bridge work = Rs. 28,270 against Rs. 23,600 provided in the first revised estimate. The excess is chiefly due to the cost of the pingadu wood-work and the railway charges and cart hire and fitting charges having been greatly increased.

The excess over the original estimate, as submitted by the Superintending Engineer, is Rs. 23,590 which is due to—

—		Under regulator.	Under head sluice.	Total.
		RS.	RS.	RS.
(*a*) Deviation in the original design the old cut-stone having been found insufficient ..		1,689	921	2,610
(*b*) Insufficient provision made in the first revised estimate chiefly for shutters		19,107	8,875	27,982
(*c*) Increase in rates		263	..	263
(*d*) Extra work found necessary		78	1,276	1,354
Total ..		21,137	11,072	32,209
Deduct—	RS.			
Savings in baling	4,500	..	..	8,619
" in unforeseen works	1,000			
" in contingencies	1,413			
" under minor items	1,221			
" " flood banks	485			
Net excess ..				23,590
Add the difference in the cost of the bridge work as per estimates submitted by the General Superintendent, Public Works Workshops, and the original provision				4,670
Total excess ..				28,260

But in the supplemental estimate for wood-work submitted by the General Superintendent, Public Works Workshops, a rate of Rs. 4 per cubic foot of pingadu wood-work excluding conveyance charges has been allowed, which appears very high.

From the telephone message received from the General Superintendent, it would appear that Rs. 4 per cubic foot has been approximately fixed and that the work will be undertaken by the Executive Engineer, Madura.

A data sheet for the pingadu wood-work has been prepared in this office and put up herewith for perusal, from which it will be seen that a rate of Rs. 2–10–0 per cubic foot including all charges is sufficient. As the wood-work is not to be carried out by the workshop, the departmental charges 17 per cent. and centage on labour at $12\frac{1}{2}$ per cent. allowed in the estimate prepared by the workshop may be omitted.

	RS.
Then the cost of wood-work will be (against Rs. 9,000 estimated for by the shops) as detailed in the data sheet	4,330
Adding to the above the cost of the iron work as per estimate submitted by the General Superintendent, Public Works Workshops	19,270
The total cost for the bridge amounts to ...	23,600 or same as originally provided for.

If this is approved, the net excess will be only Rs. 23,590 against Rs. 28,260 shown above.

M.V.
8–6–06.
C.R.C.
9–6–06.

It won't do to trust to a catalogue of 1898 for the price of wood; it may easily have increased 50 per cent. since then as teak has.

Wire deferred to Mr. Brown.

Please quote current rates for pingadu scantlings.

T.W.S.S.
11–6–06.

Mr. Brown reports the price of pingadu to be Rs. 1–9–0 at Kallai which is that taken in the data sheet prepared in Madras. The office estimate of Rs. 23,600 may therefore be accepted.

Deputy Chief Engineer for Irrigation—

The net excess over the sanctioned estimate = Rs. 23,590. An estimate, amounting to Rs. 6,250, has now been received from the General Superintendent, Public Works Workshops, for the modifications carried out in the main shaft of the shutters of the regulator with his No. $\frac{W}{7}$., dated 20th June 1906. This amount has now been included in the revised estimate as per Deputy Chief Engineer for Irrigation's orders. The total excess now amounts to Rs. 23,590 + Rs. 6,250 = Rs. 29,840.

M.V.
27–6–06.

C.R.C.
27–6–06.

Telegram from A. Brown, Esq., Kallai, Malabar, to the Chief Engineer for Irrigation, dated 12th June 1906.

Pingadu scantlings ordinary sizes one rupee fifteen annas delivered rail Coonoor quantities not less than 350 cubic feet.

Reply. "Quote price on rail at Calicut".

T.W.S.S.
12–6–06.

Telegram from A. Brown, Esq., Kallai, Malabar, to the Chief Engineer for Irrigation, dated 13th June 1906.

One rupee nine annas rail Kallai.

Under Secretary—

Submitted.

Office-note from A. Brown, Esq., to the Officer in Charge, Madras Irrigation, dated Kallai, 12th June 1906, No. 7534.

I am obliged for your telegram of the 11th instant reading—

"Please quote current rates for pyngadu scantlings"

replying to which I sent you a wire to-day quoting my rate for same, which I trust you will find satisfactory.

Office-note from A. Brown, Esq., to the Officer in Charge, Madras Irrigation, dated Kallai, 13th June 1906, No. 7583.

I beg to acknowledge the receipt of your telegram to hand this day reading as follows, viz. :—

"Quote price on rail at Calicut"

Quotation has been sent under separate cover.

Data for Pingadu wood work.

Total cubic feet of Pingadu wood required for the flooring of the bridge over the Peranai regulator = 1,490 c.ft. The weight of cubic feet = 64 lbs.

Total weight = $\frac{1,490 + 64}{2,240}$ = say 43 tons.

The distance from Kallayi station (West Coast) to station Ammayanaikanur *viâ* Erode = 326 miles. The railway charge for scantlings is ·5 pie per maund or $13\frac{1}{2}$ pies per ton per mile or say Rs. 3 per mile for 43 tons.

	RS.
Total railway charge = 326 × 3 = ...	978
Cart-hire from Ammayanayakkanur to the work spot, say, about 10 miles at 2 carts per ton, say	100
Total ...	1,078

	RS.	A.	P.
This gives per c.ft. $\frac{1,078}{1,490}$ = ...	0	11	7
Cost of scantlings at Kallayi on trucks	*1	9	0
Contingencies for unloading, etc.	0	0	5
Carpenters' labour for fixing, etc.	0	3	0
Total per c.ft. ...	2	8	0
With an allowance of extra 2 annas for unforeseen charges the rate per c.ft. will be	2	10	0

Cost of planking 1 inch thick comes to less than Rs. 1–9–0 per c.ft., but it is not separately taken into account.

Abstract.

	RS.
1,490 c.ft. of Pingadu wood-work wrought and put up at Rupees 2–10–0 per c.ft.	3,911
Contingencies and supervision charges at 10 per c.ft.	419
	4,330
Add for iron works as per estimate from General Superintendent.	19,270
Total for bridge ...	23,600

* *Vide* Circular No. 2709 C., dated 3rd June 1898.

Chief Engineer for Irrigation—

A draft order on the re-revised estimate for remodelling the Peranai head works, Periyár project, is submitted below and may, if approved, be forwarded to the Local and Municipal Department for acceptance * before circulation to His Excellency.

*With reference to paragraph 2 of Chief Engineer's note.

T.R.
M.A.
17-7-06.

C.A.S.
17-7-06.
T.W.S.S.
19-7-06.

To the Local and Municipal Department u.o.

LOCAL AND MUNICIPAL DEPARTMENT.

This seems to be correct. The width of the road way has been fixed at 9 feet which was finally accepted in Local and Municipal Department. Is there a copy of the notes to that Government Order available?

G.O., No. 761 W., dated 29th March 1906. **A**

There is no alteration in the contribution to be paid by the District Board.

H.D.T.
20-7-06.

A. The original of G.O., No. 761 W., dated 29th March 1906, containing the notes, is, it is understood from Public Works Department, not available here.

V.S.
20-7-06.

My recollection is that Local and Municipal finally accepted the proposal for a 9 feet road way. On that understanding the draft is accepted.

H.D.T.
21-7-06.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Under Sercetary—

The original of G.O., No. 761 W., dated 29th March 1906, is not immediately available. It is, however, understood from Secretary's office here that the draft of this Government Order was accepted by Local and Municipal Department.

Submitted that the draft order may be circulated to His Excellency.

T.W.S.S.
21-7-06.

His Excellency the Governor—

A. L[AWLEY].
23-7-06.

[G.O., Nos. 814-15 I., dated 26th July 1906.]

1,000—22-3-46.

[illegible]

at Pesarai,

Peryas ; Project

CURRENT FILE.

L. 04300.

Letter from the Supg. Engineer, VI Circle, dated 23-1-06, No.64 C.E., submitting for sanction re-revised estimate for remodelling the Peranai Head works.

No 473 d. 9. 2. 06

DESPA[illegible]
DATE 9. 2. 1906
ENCLOS. 1

Copy forwarded to the General Superintendent, P.W.Workshops, who is requested to explain the cause of excess in the item "shutters" referred to by the S.E.

[illegible]
6/2/06

[illegible] 6/2/06

Stock Form No. 141.
2,000 - 3-11-05.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 853

ENCLOSURES. { Plans No. / Others No.

Total

SPARE COPIES.

Received 14 . 2 . 1906.

Registered — Do — 1906.

Passed on by Registering Clerk ...

" " U. R. Clerk ...

" " Record-keeper ...

" " Drafting Officer ...

Subject.

Pernai shutters :- Informs that there was no excess over the estimate for the —— but only a saving of Rs 14521

No. W/33 E.S.

Station Madras, *Dated the* 13 . 2 . 1906

From (Name)

(Designation) Gl. Supdt. P. W. Workshops.

To *The Chief Engineer* / *The Joint Secretary* *to the Government of Madras,*

Public Works Department,

Irrigation Branch.

Sir,

Papers

[illegible]

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

No. W/33 E.D.

PUBLIC WORKS STORES, & Workshops

"Mint Post Office,"

Madras, 13th February 1906.

From

H. B. Peirce Esq.

~~M. BROWN, Esq.,~~

GENERAL SUPERINTENDENT,

PUBLIC WORKS STORES, & Workshops.

To

The Chief Engineer
for Irrigation
— Chepauk —

SIR,

Enclosures.

P. 4 of Cf.

With reference to your endorsement No. 473 dated 9.2.06, I have the honor to state that there was no excess the Estimate in these Workshops but a saving of Rs 14,521/- The sanctioned estimate amount was Rs 1,50,800/-* on which debits were raised to a total of Rs 1,36,279/-

14521
50800

I have the honor to be
Sir
Your Most Obt. Ser.
H. B. Peirce
General Superintendent
P. W. Workshops
13.2.06

*: Head Sluice.
As per estimate approved & sent with office note No. 157 D. dated 5th May 1905. Rs 43,800/-

— Regulator —
As per Estimate approved and sent with office note No. 470 dated 13.2.05. Rupees 1,07,000/-
Total Rs 1,50,800.

Z

K

Rec 13/2/06

Public Works Department,
V Circle.

PUBLIC WORKS STORES.

From

H. B. Peirce Esquire

GENERAL SUPERINTENDENT,

PUBLIC WORKS STORES,

Madras,

To

THE Chief Engineer for
Irrigation
Chepauk

No. 60/33 E.I.

Dated 13th
Despatched 13th } February 190 .
Received

NO. OF ENCLOSURES.

Nil

Subject.

Peravai Shutters — Informs that there was no Excess on the Estimate of the — in these shops, but a Savings of Rs 14521/-

E13
P.W.C 8071/06

4/ 20720 8

Memo.

DESPATCHED
DATE 27.2.1906
ENCLOS. 1

With reference to letter No.W/33 E.I., dated 13-2-06 from the General Superintendent, P.W.Workshops, the Chief Engineer for Irrigation has the honour to observe that in G.O., No. 156-57 I, dated 10-2-04 approving the original estimate for the work "Remodelling the head works at Peran..." a provision of ₹1,90,050 ☒ was made for the shutters, as shewn below:-

☒ Vide comparative statement printed in pp 4-5 of G.O. No.188-I, d/ 18-2-05. Copy enclosed. (Flag G)

10 shutters for the regulator. -------	1,46,250
6 shutters for the Head sluice. ----	43,800
	1,90,050

When this estimate was subsequently revised, it was reported by the General Superintendent in his No.W/38 E.I., dated 15-11-04, that there would be a saving ÷ of ₹66,690 in the item "shutter". The provision for shutters was therefore reduced to ₹1,23,360 in the revised estimate approved in G.O., No.188 I, dated 18-2-05.

*flag F

÷

Head sluice shutters.	7,500
Regulator shutters.	49,500
	57,000
Add 17 % for Indirect charges. -----	9,690
	66,690

flag G

In the comparative statement of differences accompanying the revised estimate now received from the Supg. Engineer, the cost of the shutters is shewn to be ₹1,50,100 against the actual provision of ₹1,23,360 in the 1st revised estimate. The General Superintendent is therefore requested to explain why the saving of ₹66,690 anticipated in his letter No.W/38 E.I., dated 15-11-04 was not ~~realised~~ effected.

(Signed) 26/2

To
The General Superintendent,
P.W.Workshops,
with a copy of G.O.188-I.d/18-2-05.

6 9

Stock Form No. 141
?,000-3-11-05.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 1140

ENCLOSURES. Plans No.
Others No.
Total

Received 3 190 .

Registered 2-3-1906.

SPARE COPIES.

Passed on by Registering Clerk ...
" " U. R. Clerk ...
" " Record-keeper ...
" " Drafting Officer ...

Subject.

Peranai Regulator shutters: Explains why the saving of Rs 66690 anticipated already was not effected on the —

No. W/37 2?

Station ...., *Dated the* 1-3-1906.

From (Name)

(Designation) Gl. Supdt. Ow. Stores & Workshops.

To *The Chief Engineer* / *The Joint Secretary* *to the Government of Madras,*
Public Works Department,
Irrigation Branch.

Sir,

Papers

[illegible]

[illegible]
2/3/06

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

7 10

Form No. S. 3.
200—15-9-05.

No. W. E. 9 / 37

PRESIDENCY PUBLIC WORKS WORKSHOPS,

"Mint Post Office,"

Madras, 1st March 1906.

From

H. B. Peirce Esq.
~~M. BROWN, Esq.~~,

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer for Irrigation.

P. W. D.

Chepauk.

CHIEF ENGINEER
FOR IRRIGATION.
2 MAR 1906
No. 1140

SIR,

Enclosures.

With reference to your no. 720 dated 27th February 1906

Flag VII. I have the honor to state that in my No. W/38 E.9. dated 15th Novr 19[illegible]
I communicated the probable saving, which was a rough figure at that time, without actually preparing a revised estimate, which, when prepared, amounted to Rs 150,800. The saving was only effected on the Regulator shutters, the estimated amount of which was Rs 107,000 and this was approved of in your office note No. 470 dated 13th February 1905.

2. A reduction of about Rs 3.500 in the estimated saving was due to the extra expenditure on the sprocket wheels, as mentioned in my No. W/57 E9. dated 20th March 1905.

I have the honor to be
Sir
Your most obedient Servant.

H. B. Peirce, 3/06

General Superintendent
P. W. Workshops.

[initials] 1.3.06

[initials] 1.3.06

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

H. B. Peirce Esquire

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

Madras,

To

THE Chief Engineer for Irrigation Chepauk

No. W. E. I / 37

Dated 1st }
Despatched 1st } March 1906.
Received }

NO. OF ENCLOSURES.

Nil

Subject.

Explains why the saving of Rs 66,690 anticipated already was not effected on the Peranai Regulator Shutters.

PWC 8071/06

E14

9 11

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

No 1034
20.3.06

The undersigned has the honour to request that the General Superintendent P.W. Shops will be so good as to forward as soon as possible to this office the tracing of the sanctioned plan of the Peranai Regulator Shutter as it is intended to obtain a few black line prints thereof.

FMGS
19/3/06.

DESPATCHED
DATE 20.3.1906
ENCLOS.........

To the General Supdt
P.W. Shops.

MR
19/3/06

19/3/06.

Stock Form No. 141.
2,000—3-11-05.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 1635

ENCLOSURES.	Plans No.	*Received*	190 .
	Others No.	*Registered* 24. 3.	1906.
	Total		

SPARE COPIES.

Passed on by Registering Clerk ...
" " U. R. Clerk ...
" " Record-keeper ...
" " Drafting Officer ...

Subject.

Peranai Regulator Shutter:— Submits the tracings of the sanctioned plans of the —

No. W/42 E.I.

Station, *Dated the* 22. 3. 1906.

From (Name)

(Designation) Gl. Supdt. Pw. Store and Workshops.

To *The Chief Engineer* / *The Joint Secretary* *to the Government of Madras,*
Public Works Department,
Irrigation Branch.

Sir,

Papers

L.C

Tracing given for Copy

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

13 11

500—16-2-06.

No. W. / 42 E I

PUBLIC WORKS WORKSHOPS,

"Mint Post Office,"

Madras, 22nd March 1906.

From

H. B. PEIRCE, Esq.,

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer for Irrigation,

Chepauk.

SIR,

Enclosures.

2. Tracings

P. 17 C.F. With reference to your no 1034 dated 20th March 1906 I have the honor to submit herewith the tracings of the sanctioned plans of the Peranai Regulator Shutter. Some modifications are being made in the main shafting, if necessary a revised plan will be sent.

CHIEF ENGINEER FOR IRRIGATION. 24 MAR 1906 1635

I have the honor to be

Sir

Your most obedient Servant

H. B. Peirce 22/3/06

General Superintendent

P. W. Workshops.

[initials] 22.3.06

[initials] 22.3.06

17

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

H. B. Peirce Esquire

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

The Chief Engineer
for Irrigation
Chepauk

No. W. E.I.
42.

Dated 22nd
Despatched 22nd } March 1906.
Received

No. of Enclosures.

Two tracings sent separately
in a tin case

Subject.

Peranai Regulator Shutters

– Submits the tracings of the
sanctioned plans of the –

Plwe 8071 / 06

1/4 13

No 1353
17. 4. 06

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

[Current 1635]

DESPATCHED
DATE 17.4.1906
ENCLOS. 2

2 Tracings.

Memo.

The undersigned has the honour to return the tracings received with Letter No. W/42 Et dated 22 March 1906 of the General Supdt PW Shops and to request that a copy of the revised plan of the Shutters may be forwarded when the modifications in the main shafting are completed.

[illegible]

12/4/06.

DE1

The original tracings were called for for obtaining a blackline print to be sent to Mr J Davis of [illegible] Wales. As the print has already been sent to Mr J Davis thro Messrs T Cook & Sons Bombay, the tracings may be returned.

[illegible]

To the General Supdt
PW Shops

[illegible] 12/4/1906

[illegible] 14/4/06

[illegible] 12.4.06

14/ 15

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

500—16-2-06.

No. W./3 'W'

PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, 19 April 1906.

From
H. B. PEIRCE, Esq.,
General Superintendent,
Public Works Workshops,

CHIEF ENGINEER FOR IRRIGATION 8 MAY 1906 2400

To
The Chief Engineer,
Public Works Department,
Chepauk,

GOVERNMENT 20 APR 1906 WORKS DEPARTMENT

Sir,

Enclosures.
One plan
One Estimate.

With reference to G.O. No. 761, dated 29th March 1906. I have the honor to forward for sanction revised plan and estimate of 10 Bridges for Peranai Regulators 40 ft. span by 9 ft width of roadway. The following additions are now made to the original estimate, having been originally omitted by an oversight, viz no wastage (i.e allowance for calculated and actual weight of materials etc..) was allowed for in the original estimate but has been included in the revised one; also the railway freight and fitting at site. It is presumed that the Pingeon woodwork will be done by the Executive Engineer Madura and this therefore has not been included in the above estimate.

I have the honor to be,
Sir
Your most obedient Servant,
H. B. Peirce 19/4/1906
General Superintendent,

B KS 21/4/06

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

CURRENT No. 4618
PASSED ON BY
R. C. 20.4.06
U. R. C. 20.4.06
REF. 20.4.06
R. K.
D. O.

From

A. B. Peirce Esquire.

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer.
Public works Department
Chepauk

No. W./3 W

Dated 19th
Despatched 19th April 1906.
Received

No. OF ENCLOSURES.

Two

Subject.

Forwards for Sanction revised plan and Estimate for 10 Bridges for Peranai Regulators 40 ft span by 9 ft width of Roadway.

0Z567 7/5 913 PWCS071/06

16/8.22

Stock Form No. 141.
2,000—3-11-05.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 2368

ENCLOSURES. Plans No.
Others No.
Total

Received 3 190

Registered 3-5-1906.

SPARE COPIES.

Passed on by Registering Clerk ...
" " U. R. Clerk ...
" " Record-keeper ...
" " Drafting Officer ...

Subject.

Periyar Regulator Shutters. - forwards a blue print of the revised plan of gearing arrangement for the —

No. W/3 83

Station, *Dated the* 5-5-1906.

From (Name)

(Designation) Elr. Supdt. Gov. Stores and Workshops.

To The Chief Engineer / The Joint Secretary *to the Government of Madras,*
Public Works Department,
Irrigation Branch.

Sir,

Recd.

9/5.

DEI

Note
This plan will be filed with the portfolio of Periyar Headworks at Madras.

7.5.06

7/5/06

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

6 17/23

Form No. S. 3.
200—16-2-06.

No. W/3 E-9

PRESIDENCY PUBLIC WORKS WORKSHOPS,

"Mint Post Office,"

Madras, 5th May 1906.

From

H. B. PEIRCE, Esq.,

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer
for Irrigation,

CHIEF ENGINEER FOR IRRIGATION.
7 MAY 1906
No. 2368

SIR,

Enclosures.

Blue print

2.4.g C.f

With reference to your memo No. 1353 dated 17-4-06, I have the honor to submit herewith a blue print of the revised plan of gearing arrangement for Peranai Regulator shutters, showing the proposed $4\frac{1}{4}$" shaft, in lieu of $3\frac{1}{4}$" and also the extra brackets and 14" cross beam.

I have the honor to be,
Sir,
Your most obedient Servant,

H B Peirce 5/5/06

as General Superintendent,
P. W. Workshops

5-5-06

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

H. B. Peirce Esquire

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

Madras.

To

THE Chief Engineer
for Irrigation
Chepauk

No. W./3. 83

Dated 5th
Despatched 5th } May 1906.
Received

No. OF ENCLOSURES.

1

Subject.

Forwards a blue print of the revised plan of gearing arrangement for the Periyar Regulator Shutters.

101/105/06

8/3

19 24

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

Form No. S. 3.
200—15-9-05.

No. W. 'w' / 7

PRESIDENCY PUBLIC WORKS WORKSHOPS,

"Mint Post Office,"

Madras, 8th May 1906.

From

H. B. Peirce Esq ~~M. BROWN, Esq.~~,

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer,

Public works Department,

SECRETARY TO GOVERNMENT, 9 MAY 1906 PUBLIC WORKS DEPARTMENT.

SIR,

Enclosures.

One Estimate.

4618 / 3041 ofs F

In continuation of this office No W/3 W. dated 19-4-06, I have the honor to enclose a supplemental Estimate for Pingadu wood work for 10 Peranai Bridges, which was not included in the original estimate for Iron work, as it was presumed that the Executive Engineer, Madura would submit an estimate for this. The estimate includes all charges delivered at site as well as fitting.

I

I have the honor to be,

Sir,

Your most obedient servant,

H. B. Pearce 8/5/06

H. B. Pearce Esq

General Superintendent,

P. W. Workshops.

AS
8.5.06.

lbbj.

CURRENT No. 5267
PASSED ON BY
R. C. 9.5.06
U. R. C. 9.5.06
REF. 14.5.06
R. K.
D. O.

21

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

CHIEF ENGINEER FOR IRRIGATION 21 MAY 1906 2658

From

H. B. Peirce Esquire
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS,
Madras,

To

THE Chief Engineer
Public Works Department
Chepauk

No. W./7 W

Dated 8th
Despatched 8th } May 1906.
Received

R 24.05.06

NO. OF ENCLOSURES.

One

Subject.

Forwards for sanction a supplemental Estimate for Pingedu woodwork for 10 Bridges for Peranai Regulators.

C/

Memo No 3242 C. of 18th May 06

Transferred to the Chief Engineer for Irrigation in continuation of this office endorsement No 3041 C dated 7th May 1906

(By order)

RK
14.5.06

A. T. Romilly
Ag Deputy Chief Engineer

To the Chief Engineer for Irrigation with estimate

Papers

LP
21.5.06

B.

[illegible]
16.5.06

PWC 8071/8
6/9
18/5

27 22. No. 104. G d/ 25-5-06

P. W. D. Irrigation.

Memorandum.

From the revised plan of the gearing arrangement of the Peranai -- Regulator shutter received with the General Supdt's letter No. W/3 E.I. date 5th May 1906 it is observed that the dimensions of the main shaft and the cross girder at top have been increased from 3½" diameter and 12" height to 4¼" diameter and 14" height respectively. The General Superintendent is requested to be so good as to forward calculations in support of the same.

Two disposals

p 6 of C.F

23/5/06

23/5

Despd 25/5

To

The Genl Supdt. P.W. Worjshops.

23 28 No 105 G O 25.5.06

P. W. D. Irrigation

Memorandum

It is understood from the General Supdt. P.W. Workshops that the Executive Engineer, Madura division reported in March last that some of the mainshafts of the gearing of the Peranai regulator shutters ~~were~~ have bent and that ~~that~~ the Genral foreman who inspected them reported that it would be necessary to strengthen them. The Supg. Engineer VI Circle, is requested to be so good as to submit a complete report on the subject indicating the circumstances that led to the failure of the existing gearing and its present condition.

flag 19

23/5/06 23/5.

Despd 25/5

To the Supg. Engineer, VI Circle.

Stock Form No. 141
2,000—14-5-06.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 2976

ENCLOSURES. Plans No.
Others No. /
Total

Received .... 190 .

Registered 7. 6. 190 6.

Passed on by Registering Clerk ...
" " U. R. Clerk ...
" " Record-keeper ...
" " Drafting Officer ...

SPARE COPIES.

Subject.

Explains the increase in the dimensions of the main shafts and cross girders of Aranai Regulator by forwarding necessary calculations

No. W/6 E.J.

Station ...., *Dated the* 6. 6. 190 6.

From (Name) ....

(Designation) Ex. Supdt. Dn. Workshops

To ~~*The Chief Engineer*~~ / *The Joint Secretary* *to the Government of Madras,*
Public Works Department,
Irrigation Branch.

Sir,

J. 1046/06 + file at Coty
R 7-6-06

18

Papers

2-6-06

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

25 30

Form No. S. 3.
200—18-2-06.

No. W. 6 E. I

PRESIDENCY PUBLIC WORKS WORKSHOPS,

"Mint Post Office,"

Madras, 6th June 1906.

From

H. B. PEIRCE, Esq.,

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer for Irrigation.

SIR,

Enclosures.

p7 CR

With reference to your memo No. 104.6 dated 25th May 1906 I have the honor to enclose herewith Calculations in support of the increase in the dimensions of the main Shaft and the Cross girders of the Peranai Regulators. A $3\frac{1}{4}$" Shaft (not $3\frac{1}{2}$" as Stated in your memo) was originally put in and this Shaft shows a very Considerable twist when the Shutters are raised. I therefore Considered it advisable to put in a Considerably heavier Shaft namely $4\frac{1}{4}$" although theoretically $3\frac{3}{4}$" should be sufficient. A 4" Shaft would have been ~~used~~ used but this size not being in Stores Stock I have used the nearest size available namely $4\frac{1}{4}$"

The present beams Carrying the main Shaft

also show a very appreciable sag and I have therefore increased the depth of these. I have had one of these beams (14"×6"×46 lbs) erected in these Shops with the new Shaft on it and find that the sag is only slight.

I have the honor to be,

Sir,

Your most obedient Servant,

H. B. Pearce 6.6.06

General Superintendent,

P.W. Workshops.

KG 5.6.06

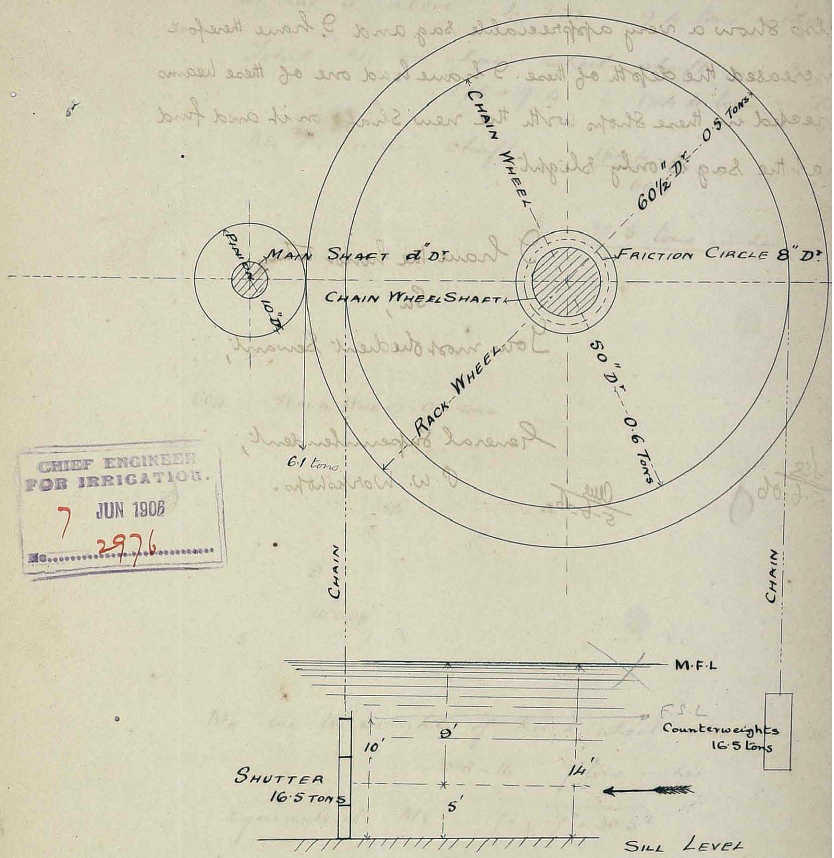
Ame 5-6-06

32

2712

PERANAI REGULATOR

Main Shaft



CHIEF ENGINEER FOR IRRIGATION.
7 JUN 1906
No. 2976

Coefficient of friction = 0.07

M_T = Twisting Moment

M_B = Bending Moment

Friction due to water pressure on

should be 5 I think shutter = 40' × 10' × 9 × 62.5 × 0.07 = 7 tons

40 × 10 × 5 × 62.5 × 0.07 = 9450 lbs

M_T due to raising of shutter against

½ diar? water pressure = 25 × 7 = 175 tons inches

. Pressure on chain wheel shaft = Chain

tensions + weight of chain wheel = 16.5 + 16.5 + 0

= 33.6

$\therefore$ Journal friction $= 33.6 \times 0.07 = 2.35$ tons inch

M_T due to above $= 4 \times 2.35 = 9.4$ tons inches

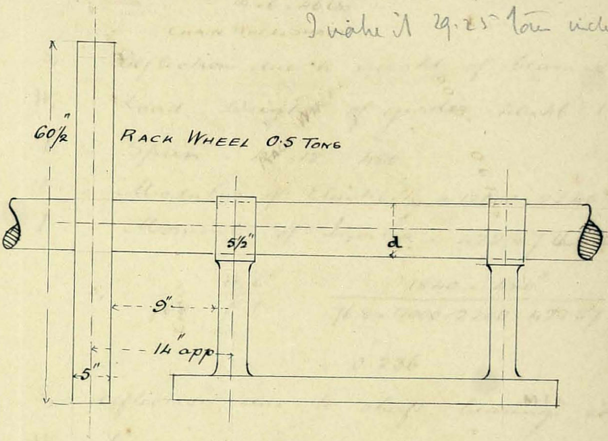
$\therefore$ Total M_T on chain wheel shaft

$= 175 + 9.4 = 184.4$ tons inches

$\therefore$ M_T on main shaft $= \dfrac{184.4 \times 10}{60\tfrac{1}{2}}$

$= \underline{30.5 \text{ tons inches}}$

I make it 29.25 tons inches



M_B due to weight of Rack wheel, overhung 14"

$= 0.5 \times 14 = \underline{7}$ tons inches

$\therefore$ Equivalent $M_T = 7 + \sqrt{7^2 + 30.5^2}$

$= 38.29$ tons inches

Taking a safe stress of 4 tons to a sq. inch

$M_T = \dfrac{\pi}{16} \cdot 4 \cdot d^3 = 38.29$

whence $d = 3.66$ or say

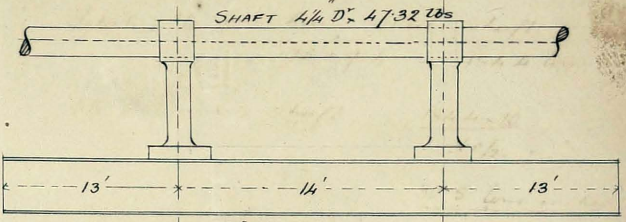
$\underline{\underline{3\tfrac{3}{4}"}}$

The nearest size available in stores is $4\tfrac{1}{4}"$ which may be turned down to 4" at bearings.

H B Peirce 6/6/06

General Superintendent,

R. S. Beam



δ_1 = Deflection due to weight of beam only

W_1 = Load, Weight of girder = 40 × 46 = 1840 lbs

l'' = Span = 40' × 12 = 480

E = Modulus of Elasticity = 12000 × 2240 lbs per □"

I = Moment of Inertia = 422.57 lbs inch for beam

$$\delta_1 = \frac{1}{76.8} \cdot \frac{W_1 l^3}{E.I} = \frac{1840 \times 480^3}{76.8 \times 12000 \times 2240 \times 422.57}$$

$$= 0''.236$$

δ_2 = deflection due to shaft, bearings etc

W_2 = Load = (40 × 47.32) + (2 × 300) + etc

≏ 2500 lbs

For ease of calculation suppose the load is concentrated at centre, to be on the safer side

$$\delta_2 = \frac{1}{48} \cdot \frac{W_2 l^3}{E.I} = \frac{2500 \times 480^3}{48 \times 12000 \times 2240 \times 422.57}$$

$$= 0''.51$$

Total max deflection = 0.236 + 0.51 = 0''.746

Supposing W_2 is distributed δ_2 = 0''.31

∴ Minimum deflection = 0''.53

∴ The actual deflection lies somewhere between ½" & ¾"

H. B. Peirce 6/6/06

General Superintendent, [illegible]

30

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

H. B. Peirce Esq
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS,
Madras.

To

THE Chief Engineer
for Irrigation

No. W./6 E.9

Dated 6th
Despatched 6th } June 1906.
Received

No. OF ENCLOSURES.

One.

Subject.

Explain the increase in the dimension of the main shafts and cross girders of Peranai Regulator by forwarding necessary Calculation.

PWD 1208/98
12.3

No 2225
18.6.06

15 35

Page 10 C.7

Memo.

With reference to letter No.W/6 EI dated 6th June 1906 the General Supdt. P.W.Shops is informed that the proposals therein contained are approved except in the case of beam carrying the main shaft which may be made 18" deep or to the nearest available section.

The amount of the estt should be reported without delay as it has to be included in the revised estt for the regulator

F.W.H.

15/6

Urgent

Explain the increase in the dimensions of the main shafts and cross girders of Pauri Regulator my former ... necessary Calculation

~~S.E.~~ C.E.?

Please say if the calculations received from the P.W. Shops are to be returned to him

A.E.P.O.
18.6.06

Not necessary

[illegible]
18/6

14/6/06

To the General Supdt. P.W.Shops.

DESPATCHED
DATE 18.6.1906
ENCLOS..........

~~76~~ 36 32

Stock Form No. 141
2,000—14-5-06.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

Current No. 3254

ENCLOSURES. Plans No.
Others No. 1
Total

Received .... 190 .

Registered 3 21. 6. 1906.

Passed on by Registering Clerk ...

" " U. R. Clerk ...

" " Record-keeper ...

" " Drafting Officer ...

SPARE COPIES.

Subject.

Aravai Regulator shutters:- Informs that the nearest available section of 4"×6"×46 lbs was sent to increase the dimensions of the main shaft of the — and also submits an estimate for the modifications.

No. W/7 28

Station ...., *Dated the* 20. 6. 1906.

From (Name) ....

(Designation) Ex. Engr. Ovr Workshops.

To ~~*The Chief Engineer*~~ / *The Joint Secretary* *to the Government of Madras,*

Public Works Department,

Irrigation Branch.

Sir,

Papers

78

The amount of the Estimate referred to within has now been included in the revised Estimate as per D E's orders.

[signature] 26/6/06.

[signature] 27.6.06

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

17 37 33

Form No. S. 3.
200—16-2-06.

No. W. E. D. / 7

PRESIDENCY PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, 20th June 1906.

CHIEF ENGINEER FOR IRRIGATION.
21 JUN 1906
No. 3254

From

H. B. PEIRCE, Esq.,
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS,

To

THE Chief Engineer
for Irrigation
Chepauk.

SIR,

Enclosures.
one Estimate
Page 159 C.f

With reference to your No. 2225 dated 18.6.06, I have the honor to state that the nearest available Section Viz: 14" × 6" × 46 lbs was sent. A trial of the beam was made in these Shops with pedestals & shafting mounted and there was only a deflection of about 1/2" as stated in the latter part of my No. W 6 E.D. dated 6.6.06. The beams have probably been erected by this time. I also submit an Estimate for the modification which are now being made.

PP10 + 119 C.f

I have the honor to be Sir
Your most Obt. Servt.
H. B. Peirce, 20/6/06
General Supdt. P.W. Works

Ing 20/6/06

3½

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

H. B. Peirce Esquire
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS,
Madras.

To

THE Chief Engineer
for Irrigation
Chepauk

No. W. E. I
7

Dated 20th
Despatched 20th } June 1906
Received

NO. OF ENCLOSURES.

1.

Subject.

Peranai Regulator Shutters.
Informs that the nearest available section of 14" × 6" × 46 lbs was sent to increase the dimensions of the main shaft of the ÷ and also submits an Estimate for the modifi-

E 22
PWC 1105/06

E. I. Form No. 1.

8071

CURRENT No. PASSED ON BY 26-7-06
R. C.
U. R. C.
R. K.
D. O.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Remodelling the Head Works at Peranai.

again
READ the following

G.O., No.156-I, dated 10-2-04.
,, ,, 1086-I, dated 7-10-04.
,, ,, 188-I, dated 8-2-05.
,, ,, 761-W, dated 29-3-06.

Read also -

From the Supg. Engineer, VI Circle, No.64 C.E., dated 23-1-06.
To the General Supdt., P.W.Workshops, No.473 dated 9-2-06.
From ----------------do----------------No.W/33 E.I., dated 13-2-06.
To ----------------do----------------No.720 dated 27-2-06.
From ----------------do----------------No.W/37 E.I., dated 1-3-06.
To ----------------do----------------No.1034 dated 20-3-06.
From ----------------do----------------No.W/42 E.I., dated 22-3-06.
To ----------------do----------------No.1353 dated 17-4-06.
From ----------------do---------- to the Chief Engineer, P.W.D., No.W/3 'W' dated 19th April 1906.
From the General Supdt. P.W.Workshops, No.W/3 E.I., dated 5-5-06.
From ----------------do----------to the Chief Engineer, P.W.D., No.W/7 'W' dated 8th May 1906.
To the General Supdt. P.W. Workshops, No.104-O, dated 25-5-06.
To the Supg. Engineer, VI Circle, No.105-O, dated 25-5-06.
From the General Supdt. P.W.Workshops, No.W/6 E.I., dated 6-6-06.
To ----------------do----------------No.2225 dated 18-6-06.
From ----------------do---------------- No.W/7 E.I., dated 20-6-06.

Print notes
24/7

Issue
24/7.

Remodelling the head works
at Peranai,
Periyar Project.

--

Note by the Chief Engineer
for Irrigation.

Note by the Chief Engineer

for Irrigation.

---

flag 9.

In G.O., No.188-I, dated 18th February 1905, a revised estimate and deviation statement for Rs 3,01,910 were approved for remodelling the Peranai head works, Periyar Project. The Supg. Engineer, VI Circle, now submits a re-revised estimate of Rs 3,25,500 for the work, showing an excess of Rs 23,590, over the first revised estimate which is chiefly due to the following causes:— ~~from the revised estimate~~:-

p 1 ff C.F.

— do —

flag 8

Comparative statement & pp 8 to 10 of Notes file

(a) Items of excess.

(1) Excess due to (i) the extra quantity of new cutstone used, the quantity obtained from the old anicut having been found less than anticipated, and

(ii) to the thickness of the cutstone facing for the cutwaters having been increased from 9" to 12". ---------- Rs 2,610

(2) Excess due to insufficient provision made in the former estimate, chiefly for shutters.	27,982
(3) -------do------ increase in rates. ------------------	263
(4) ---------do--------extra work found necessary. --------	1,354
Total excess.	32,209

(b) Items of saving.

(i) Savings in baling. -----------	4,500
(ii) ---do---in unforeseen works.	1,000
(iii) Savings in contingencies.	1,413
(iv) ---do--under minor items.	1,221
(v) ---do---in flood banks. ---	485
Total saving.	8,619

Net excess. ----------- 23,590.

p 30 of C.F. - flag 1. The General Superintendent, P.W. Workshops, having proposed to increase the dimensions of the main shaft of the shutters of the regulator, was asked to forward an estimate for the same. He now submits an estimate of Rs 6,250 which may be added to the present re-revised estimate. The amount of the latter will then be raised to Rs 3,31,750, thus increasing the above excess to Rs 29,840. It is however observed that there has been a good deal of confusion in connection with the estimated cost of the shutters which could have been avoided if the General Superintendent had, in the first instance, furnished a correct estimate to the Supg. Engineer.

p 35 of C.F. flag IV

p 37 of C.F. flag Z

p 10 of Notes file.

Portion marked of E.I.'s remarks on page 4 of Notes file.

2. In the original estimate for the regulator only a foot-bridge was allowed but at the request of the President, District Board, Madura, a girder bridge with a roadway, 13 ft wide, to be suitable for cart traffic was provided for in the revised estimate for the work, the District Board of Madura agreeing to contribute the difference of cost between the foot bridge and the girder bridge. In G.O., No. 761 W, dated 29th March 1906, it was decided, on the motion of the Supg. Engineer, that the roadway should be only 9 ft. The General Superintendent, P.W. Workshops, was accordingly requested to

paras 1 & 4 of E.I.'s Note in G.O. No. 888 I. Q. 18.2.05 flagged 9.

flag D

revise the plan and estimate for the iron-work of the bridge. With his Nos.W/3 'W' and W/7 'W' dated 19th April and 8th May 1906, respectively, he submitted two estimates aggregating Rs 28,270 for (1) iron-work and (2) Pingadu wood-flooring of the bridge, against Rs 23,600 as shewn in the first revised estimate. The rate of Rs 4 per c.ft. allowed for Pingadu wood-work being considered very high, has been altered in this office to Rs 2-10-0 per c.ft. This alteration has correspondingly reduced the estimate of Rs 9,000 for wood-work to Rs 4,330. The total cost of the bridge as provided in the first revised estimate viz Rs 23,600, remains, therefore, unaltered.

pp 15 & 24, resp'y, of C.F.

R
x 19,270
x 9,000
28,270

p 4 of G.O flagged 9.

p 9 of Notes file

19270
4,330
23,600 ✓

3. As the total excess of Rs 29,840 shewn above is within 10 per cent of the first revised estimate and as the deviations made are not of an important nature, it is recommended that ~~that~~ the re-revised estimate be sanctioned by the local Government under para 2170 of the P.W.D.Code.

Order, No 814 Ir, 26.7.06

The re-revised estimate, amounting to Rs 3,31,750 for "works", or Rs 4,07,874 including the charge for establishment, for remodelling the head works at Peranai, Periyar Project, is sanctioned, in supersession of the revised estimate approved in G.O., No.188-I, dated 18th February 1905.

23.7.06

flag 9

2. This sanction is registered as

Read

13 P

No. 106 — I of 1906-07 and will expire on the 31st March 1907.

3. The attention of the Superintendent, P.W.Workshops, and the Supg. Engineer, VI Circle, is drawn to the concluding sentence of para 1 of the Chief Engineer's note above.

4. Ordered that a copy of these Proceedings be forwarded to the Government of India for information, in continuation of endorsement No.189-I dated 18th February 1905.

Endorsement. No 8159.
D/26.7.06

Forwarded.

DESPATCHED
24 AUG 1906

19/7.

17/7

DESPATCHED
21 AUG 1906

To

The Chief Engineer for Irrign.
,, Supg.Engineer, VI Circle, D 24/8
with plans & estimates.
,, General Superintendent, P.W.Workshops.
,, Examiner, P.W.Accounts.
,, Local & Municipal Dept.

17.7.06 17.7.06

4

[illegible] 24. 7. 06

1,000—22-8-05.

NOTES.

RK

B23 60/08

MESSAGE.

Date ______ Hour ______

I have not seen any file in connection with the failure of the Existing gearing. We asked, in 1904, vide flag V the Genl. Supt. to send a copy of the design of the regulator shutter as constructed actually. A copy of the design was accordingly received & recorded in this office. Vide flag B. The blue prints are put up herewith. On comparing the blue prints already received with the one now submitted it will be seen that (1) the diameter of the main shaft has been increased from 3½" to 4¼" and not from 3¼" as stated in the General Supt's letter under reference. (2) The depth of the cross beam has been increased from 12" to 14" & (3) an extra bracket at the end of the shaft over the pier has been added.

Please see if any report has been received from the General Supt. on the gearing arrangement subsequent to the reference flagged B.

No papers could be traced here
[illegible] 11-5-[illegible]

[illegible]
11/5/06.

200—22-3-06.

B23 60/08

TELEPHONE MESSAGE.

Date ______ Hour ______	Date ______ Hour ______

From Manager office of the chief Engineer for Irrigation

To The General Supdt. P.W. Shops

Reference: your No. $\frac{W}{L2}$ 28 of 22/3/06

Please let me know why the depth of the cross beam & the diameter of the main shaft of the Peranai regulator shutter have been increased to 14" & 4¼" inches respectively against 12" & 3½" given in the approved plan submitted with your No. $\frac{W}{31}$ of 13-8-04.

Was there any failure in the gearing arrangements? It does not appear that any reference was made to this office on the subject.

[signature]
M.E.I. 11/5/06

[initials] 11/5/06

Office closed
[initials]
5-5

[initials]

OVER.

PUBLIC WORKS SECRETARIAT, CHEPAUK, MADRAS.

TELEPHONE MESSAGE.

Date	Hour	Date	Hour

From G. S. P. W. Shops

To M. E. I.

From

To

MESSAGE.

Your telephone of 12-5-08

-E. Mabura reported in March

that the sizes of the main shafts

of the Pennai shutter gearing

were bent. The Govt Foreman

these shops was sent to

inspect them & reported it

will be necessary to strengthen

shafts as although the shaft

worked satisfactorily on trial

with the experimental shutter

used by E. I. in the shops

were being strained

site due to pressure of

water against shutters

The

REPLY.

MESSAGE.	REPLY.
The matter was discussed with S.E.V. © and a plan and estimate of the proposed modification sent to him which was sanctioned in anticipation of final sanction as the work was of an urgent nature and the work was put in hand. The work will be completed, despatched & fitted at site before the next floods.	

KO
11.5.06
4.25.

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

E. I.

The Gen Supdt was asked to send a tracing of the Peranai Regulator gearing for purposes of recording &c. He now sends a blue print of a revised plan of gearing but the Madras office has not sent up the file in connection with the failure of the existing gearing.

Even as now revised the depth of the beam is much less than is ordinarily allowed for a 40 ft span and whether any good purpose is served by increasing the diameter of the shaft I cannot say. The shaft will not bend appreciably less for being made 4¼" instead of 3¼" & I think it would be better to leave it as it is & make the beam 20" ~~18~~" deep at least.

F.W.S.

9/5/06.

Please call for the other file.

The 3¼" shafts have bent near the ends & this is not I believe due to the weakn

PUBLIC WORKS DEPARTMENT.

Irrigation Branch.

of the beam.
Also I think the Gen Supt proposes to thicken the shaft as it was doubtful if the present ones are strong enough to resist the torsion

[illegible]
9/5

D. E. I.

No report has been received in this office about the failure of the gearing at the Peranai regulator. Please see telephone message from the General Supdt. P. W. Workshop, Flag 19. placed below.

RK [illegible]
19.5.06

Please send up the file in connection with the failure of the existing gearing

[illegible] 9/5/06

Ask S. E. VIth for a report & Gen Supdt for the calculations

[illegible]
22/5/06.

Flag 19

Flagged S. Issued as No 1040 d/ 25-5-06

[illegible]
17/5/06

P.W. D. Irrigation.

From the General Supdt. P. W. Shops. No. W/6 E.I. dared 6th June 1906

Lr 10 & 14 file

D.I.

The Genereal Supdt. has now forwarded calculati[ons] insupport of the increase in the dimensions of the -- main shaft and the cross girders of the Peranai --- Regulator.

For orders..

[initials] 11/6/06

The Supdt has drawn the shutter in a position it was never meant to occupy & his calculation for twisting moment is not understood. In the position shown there is theoretically no water pressure. However the greater strain seems to be given by the bending moment & may be accepted. I suppose a 3/4" deflection in the beam may be allowed but it must add a good deal to the strain on the shafts.

[initials] 11/6/06

I cannot quite follow the calculation for twisting but have re-calculated them according to Molesworth P.B. Pg 3rd & they seem to be well on the safe side. I should prefer a stiffer beam with less deflection & if it is not too late the girder [illegible] may be asked to change the [illegible]

[initials] 13/6

Draft letter to Supdt to substitute beam 18 in deep or the nearest available in stock

[initials]

Draft put up for appl 13/6

[initials]